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Article (Submitted version) (Pre-refereed)

Original citation:
Astuti, Rita and Bloch, Maurice (2012) *Anthropologists as cognitive scientists. Topics in cognitive science*, 4 (3). pp. 453-461.
DOI: 10.1111/j.1756-8765.2012.01191.x

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Key words: Anthropology, Ethnography, Cognitive Science.

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ABSTRACT

Anthropology combines two quite different enterprises: the ethnographic study of particular people in particular places and the theorising about the human species. As such, anthropology *is* part of cognitive science in that it contributes to the unitary theoretical aim of understanding and explaining the behaviour of the animal species *Homo Sapiens*. The paper draws on our own research experience to illustrate that cooperation between anthropology and the other sub-disciplines of cognitive science is possible and fruitful, but must proceed from the recognition of anthropology's unique epistemology and methodology.

Before addressing the question of whether anthropology should be part of cognitive science, we want to clarify what we mean by anthropology. In this paper we use the word to refer to what is normally known as social and cultural anthropology. These two related disciplinary traditions are characterised by the oddity that they entail two quite different enterprises (Sperber, 1985). One is "ethnography" which involves the in-depth study of particular people in particular places. The other is "anthropology" which involves theorising about the human species. In practice, social and cultural anthropologists, including the authors of this paper, have most often done both jobs together. This may seem an odd combination, but we believe this awkward amalgam has been one of the subject's greatest strengths and it is perhaps one of the most important contributions that anthropologists can bring to cognitive science. This is because anthropologists' theorisation is always haunted by the presence, at the back of the mind, of specific places and situations, while anthropologists' ethnographic description is always haunted, at the back of the mind, by the generalizing aim of theorisation. In what follows, when we refer to anthropology we mean the kind of social and cultural anthropology which combines ethnography and theory.

There can be no doubt that anthropology, as we understand it, *is* part of cognitive science, since it shares with it the same theoretical aim: to understand and explain the behaviour of members of the animal species *Homo Sapiens*. Of course, as a discipline that is practiced in specific university departments or that adheres to particular intellectual traditions, anthropology does appear to have had a troubled relationship with cognitive science. But the problem is one of institutional arrangements and historical contingencies, not of theoretical incompatibilities. Cooperation should be established around the joint theoretical aim of cognitive science, which will ultimately determine who will want to co-operate with whom and who will not. Thus, if there are people in university departments labelled "anthropology" who, implicitly or explicitly, disregard the evolved history of *Homo Sapiens* or people in

departments labelled, for example, “cognitive psychology”, who, implicitly or explicitly, disregard the historical or cultural character of *Homo Sapiens* and the specifities that this creates, then there is no point in other cognitive scientists making the effort of cooperating with them. This is because such scientists are not studying humans but creatures from the planet Zog.

Luckily there are plenty of people who are committed to studying *Homo Sapiens* on planet Earth, and therefore there should be no difficulty for many anthropologists to join or re-join a band consisting of many other cognitive scientists. What unifies them is that they are all engaged in the same theoretical project. This unity is worth stressing. To put it simply: there is only one theory. Theory is one because there is only one phenomenon to be addressed: the nature of human beings. Theoretical proposals, from wherever they emanate, whether from anthropology or psychology or philosophy or wherever else, should thus be evaluated and criticised according to a unified set of validity criteria. This is the point of cognitive science: to transcend the differences between particular research traditions and to unify them at the theoretical level. From this perspective, anthropologists who embrace this theoretical project should be no different from any other cognitive scientists.

However, in practice, things are not so simple. This is because the temporal dynamic of academic disciplines and intellectual traditions leads their practitioners to positions that are genuinely difficult to reconcile with that of other cognitive scientists. For example, the dynamics of early modularist theories led psychologists to so simplify their understanding of cognitive processes that the ways they proceeded to examine them became largely irrelevant to the understanding of real human beings, that is, human beings who think and act in specific social and historical environments. Similarly, the dynamics of anthropological theories have produced unlikely descriptions of human beings that entirely discount the processes of their

natural minds and bodies; people came to be represented as acting out arbitrary pre-written texts.

These kinds of dead ends have often occurred in the history of science but there have also been corrective mechanisms. One of the most important ones is the confrontation that occurs when different disciplinary dynamics come together and criticise each other's sterile outcomes. Thus, one of the strengths of cognitive science has been its federal character which has often encouraged such confrontations This may be difficult and painful, especially when the challenges come from traditions which have very different intellectual histories, but the process has also been productive. This is the reason why we want to maintain the place of anthropology within cognitive science, and why we would welcome a rebalancing of the various disciplinary contributions to the joint project. As noted by Beller, Bender & Medin, cognitive psychology has *de facto* taken over cognitive science. This is a problem because if cognitive science is reduced to one of its constitutive disciplines, all the others will inevitably appear to be out of sync. Synchrony will not guarantee harmony, but will generate the kind of interdisciplinary confrontations that will be beneficial to all.

Nonetheless, there are real epistemological and methodological differences between anthropology and other sub-disciplines of cognitive science, which should not be underestimated and should be fully understood before any real cooperation can be envisaged. If we compare, for example, anthropology with cognitive psychology, it is quite clear that their practitioners set out from opposite starting points. Typically, cognitive psychologists begin by reflecting on the accumulated knowledge of the discipline, formulate hypotheses, invent research strategies to test these hypotheses in artificially created situations which, ultimately, are intended to clarify the phenomenon: that is, the world which exists out there, beyond the laboratory. Anthropologists, by contrast, typically reverse this intellectual trajectory, and start with the phenomenon: the every day process of life as it unfolds, for

example, in a Malagasy village. Then, by means of speculative reflection and the use of accumulated theoretical knowledge, they identify the general processes that have contributed to the occurrence of the phenomenon. Anthropologists do not create a laboratory for "as if" occurrences because it is real occurrences, in all their complexity and uniqueness, which they aim to study.

Both sides are likely to be horrified by each other's epistemology and methodology. The psychologists will complain about the non reproducibility of anthropological data, which means that only evocative anecdotes are adduced as evidence. This means, among other things, that the normal tests of statistical significance cannot be applied. And they will complain about the lack of transparency in the anthropologists' speculative and theoretical process. On their part, the anthropologists will complain that the psychologists' experimental scenarios can never, even remotely, connect with life as it is. Worse, they will object that, having purposefully isolated the phenomenon, in all its static purity, the experimenter then mistakes it for the very distantly related phenomenon that occurs in real life. It is arguably this heuristic strategy that generates a whole gamut of misleading oppositions, including that between process and content, between innate and culturally constructed, or between universal and culturally specific.

Should we then despair of ever reaching a situation where anthropologists and other cognitive scientists can respect each other's work and pull their knowledge together? The answer is "no" because, in fact, despite the inevitable difficulties, there are encouraging examples of fruitful cooperation. In this respect, we feel that the picture painted by Beller et al. is perhaps too pessimistic (notwithstanding the few exceptions they mention).

It is true that the American tradition that went under the label of "Cognitive Anthropology" (Tyler, 1969) seems to have little appeal nowadays. However, there are anthropologists who

have carried forward some aspects of this tradition, and have integrated them with new findings from cognitive science (e.g., D'Andrade, 1995; Strauss & Quinn, 1997). From the other side, there are psychologists who have incorporated anthropological theory and ethnography in their work (e.g., Cole, 1996; Rogoff, 2003) and there has been research (Hutchins, 1980, 1996) that is hard to pigeonhole as either anthropological or psychological – a testimony to some sort of *de facto* integration.

Much has been happening in Europe as well. In his teaching and research at the London School of Economics, Maurice Bloch has for many years encouraged the integration of anthropology into cognitive science. Building on his legacy, Rita Astuti and Charles Stafford have been developing a range of initiatives aimed at promoting cross-disciplinary dialogue and cooperation. For example, the LSE Anthropology Department has recently hosted a series of lectures and seminars by a large number of cognitive scientists, including anthropologists, cognitive psychologists, neurologists and linguists. Over the years, the LSE group has worked closely with Dan Sperber and his group of colleagues and graduate students. Many of them have been crucial in animating the internet based International Cognition and Culture Institute, which was set up by the LSE Anthropology Department and the Jean Nicod Institute. Indeed, much of the activities in Britain, but especially in France, owe much to Sperber's pioneering work. It is true that Sperber himself, and the people most closely associated with him (e.g., Scott Atran, Pascal Boyer, Larry Hirschfeld), may seem to have moved away from anthropology, but their work is nonetheless much discussed and taught in anthropology departments. Other active hubs of collaborative research have been created, first in Belfast and more recently in Oxford, by Harvey Whitehouse, originally trained as an anthropologist at the LSE.

Finally, quite apart from these institutional arrangements, there are many anthropologists who regularly engage with developments in cognitive science (e.g., Philippe Descola, Tim Ingold,

Webb Keane, Tanya Luhrmann). And, of course, there is the work of the two authors of this paper, which we know best and which we discuss in some detail, as our experience highlights both the potential and the difficulties of future cooperation.

Astuti's story is a textbook illustration of what we said above about the starting point of the anthropologist. She started by spending 22 months in a Vezo village on the coast of Madagascar (followed by several other extended visits). She learnt the language, she went to market, she went fishing, she attended funerals, circumcision, marriage and tomb building rituals, she went to diviners, she watched babies being born and die, she learnt to dance and to weave mats, she was blessed by the ancestors and had dreams about them, she recorded kinship networks and asked millions of *why*, *how*, *who* and *what* questions. Based on her ethnographic knowledge, she wrote a monograph (Astuti, 1995) – the kind of single authored book Beller at al. refer to – that focused on the nature of Vezo social categorization and kinship system, while also giving a holistic account of Vezo social life. At this point, thanks to a set of conversations already started by Bloch, Astuti became aware of a body of research in developmental psychology that seemed to be relevant to her ethnographic findings. She read Hirschfeld's work on children's social categorization (Hirschfeld, 1996) and Carey's work on children's intuitive biology (Carey, 1985; Solomon, Johnson, Zaitchik & Carey, 1996) and spent considerable time and effort in matching their terminology, questions and claims with the ethnographic reality of her village in Madagascar. The exercise led right to the heart of some key anthropological assumptions about kinship and personhood. For this reason, holding tight to her ethnographic knowledge of a small group of people in a small village in Madagascar, Astuti decided to confront developmental psychology head on.

As Susan Carey[1] remarked a few years later, Astuti approached the task in characteristically ethnographic fashion, i.e., by doing long-term fieldwork among developmental psychologists (she spent three months at NYU and 12 months at Harvard in Carey's baby labs), thus

learning their language, techniques, evidential standards, ways of identifying, thinking and writing about a problem. To be clear: there have been no convenient short-cuts in this story, neither in the original process of gaining ethnographic knowledge of the Vezo, or in the process of understanding the *modus operandi* of another discipline.

On her part, Carey's first move was to read some anthropology. She read a paper by Bloch (1993) on Malagasy conceptualizations of birth and on the idea that, from a certain cultural perspective, it is children who generate their parents, since it is not until parents have children that they become fully social persons; she read Astuti's monograph and sat through several lengthy "tutorials" on kinship and anthropological theory. Like Astuti, she had to learn to read a different language, to understand different evidential standards and to find theoretical relevance in ethnographic data. Her previous personal encounters with anthropology meant that she understood very well the challenges inherent in the cooperation and what was needed if it were to succeed. Thus, the simple but crucial stipulation Astuti and Carey made from the start was that anthropologist and psychologist were prepared to join forces and to spend time and effort learning about each other's trade only if the prize was the generation of data that had theoretical import for both of them. In this way, they avoided the very real risk in collaborations of this kind where the anthropologist can easily become an ancillary provider of exotic data for the comparative interests of another discipline. We shall have more to say about this later on.

Astuti and Carey worked together because they each had something to offer to the other. Astuti found Carey's work on the development of North-American children's biological knowledge theoretically interesting because, unlike other competing proposals, it suggested the possibility of radical incommensurability across cultural contexts in adult biological knowledge. Carey's theoretical approach, in other words, could provide an explanation for what appeared to be some very different biological principles articulated by her Vezo

informants (e.g., that babies resemble people other than their biological parents). On Carey's side, the starting point was a theory of conceptual change which predicted that, in the realm of biological knowledge, cross-cultural incommensurability was a possibility, and the Vezo could provide a case study for the interaction between cognitive primitives and cultural context. In fact, this joint enterprise has produced results (Astuti, Solomon & Carey, 2004) that have been surprising for both disciplines, thus forcing both sides to take stock and move forward to a place neither would have reached in isolation.

Beller et al. mention the challenge of getting anthropological contributions published in cognitive science journals (the same would be true if cognitive psychologists tried to publish in anthropological journals). As it happens, the Vezo study was published in both anthropology and developmental psychology venues. For each audience, the material was packaged according to the appropriate publishing, rhetorical and evidential conventions. For example, some of Astuti's ethnographic data was considered redundant by psychology editors, while numerical information had to be tamed before being accepted by their anthropological counterparts. In an ideal world of a fully integrated and multi-vocal cognitive science, this double act would become unnecessary. But until then, it is important that both anthropologists and psychologists are willing to look both ways and learn to respect, speak and read each other's language.

Once again, the challenges should not be underestimated – it is something of a feat that Astuti has made enough of an effort to be able to present her work at psychology conferences and in psychology departments, while maintaining her intellectual home in anthropology. This has been possible because, effectively, she had the time to train twice,[2] an observation that raises the important and possibly intractable question of the kind of interdisciplinary training that we might want to impart to a new generation of cognitive scientists. There are two issues here. The first one is institutional and concerns the employability of graduates whose

interdisciplinary training is likely to be deemed inadequate for most mono-disciplinary positions. The second one is epistemological and concerns the ways we should go about studying the cultural nature of human cognition. If we agree that culture is crucial for cognitive science (as in Beller et al.'s challenge 4), then we have to accept that only by taking culture seriously we can make progress. Anthropologists take their time to experience, describe, understand, interpret the many cultural traditions that only *Homo Sapiens* has been capable of creating. They study culture from the inside and resist treating it as an independent variable. Thus, we have to accept that some players in the cognitive science band will need to train to understand culture ethnographically, in all its complexity and historicity.

Astuti has proved that a "mainstream" anthropologist can undertake empirical research that speaks to both anthropologists and cognitive psychologists (for another example, see Astuti & Harris, 2008). But there are other ways in which the integration of anthropology within cognitive science can occur. This is at the theoretical level, and for this too a degree of conceptual generosity and acquaintance between disciplines is necessary. To illustrate both the challenges and the successes, here's Bloch's story.

In an article published in 1991, Bloch attempted the theoretical integration and cross-fertilisation of neurological, psychological, linguistic and anthropological data and theory. But although this paper has been widely cited by anthropologists and other social scientists, it is hardly ever referred to by fellow cognitive scientists. There are a number of possible and instructive reasons for this.

First, Bloch's use of the theoretical expertise and empirical evidence of other disciplines may well appear naïve and superficial to the specialist. We should remember, however, that this will always be the case when scientists from one discipline attempt to integrate and use the findings of another. Because cognitive science is predicated on such co-operation, the

practitioners of the constituent disciplines should get used to help each other with suggestions and criticisms in order to minimise the inevitable shortcomings of those who attempt to move across boundaries. This is a lesson that should be particularly taken to heart by cognitive psychologists. Because of their virtual takeover of cognitive science, which we noted above, it might be assumed that only their ways of doing things are acceptable. But this is to forget just how varied the constituent disciplines are – and should be.

Such variety leads us to reason number two. As we have already alluded above, the style of presentation and argumentation and the evidential standards of the different sub-disciplines of cognitive science are so different that the publications of one are genuinely difficult to read by the others. While this is undeniably the case, if the promise of cognitive science is to be realized, sustained efforts have to be made. At a minimum, cognitive scientists should be prepared to read each other's work and, as a first step, each constituency should be prepared to suspend disbelief, even if informed criticism is to come next.

But there is a third, much more fundamental reason why the theoretical work of anthropologists tends to be overlooked by other cognitive scientists, and this is the fundamental misunderstanding about the nature of anthropology – and with this we come full circle, back to our initial definition of anthropology. This consists in the belief that all that anthropologists do is ethnography and, what is more, that ethnography is simply a matter of bringing back raw data in much the same way as shore scavengers bring back bits of wood and the odd exotic sea creature. Such a belief leads some cognitive scientists to assume that they can simply reverse the epistemological basis of anthropology and use the anthropologist as a glorified and, why not, better organized, disciplined and systematic research assistant, whose job is to export their experimental tasks to new cross-cultural locations. As we have argued elsewhere (Astuti & Bloch, 2010), the idea that we can make progress "for example, by setting up permanent psychological and behavioral testing facilities in bus terminals,

Fijian villages, rail stations, airports, and anywhere diverse subjects might find themselves with extra time" (Henrich, Heine, & Norenzayan, 2010: 82) is a non-starter. Such an approach misunderstands what anthropology is and what its distinctive epistemology and methodology can contribute to cognitive science.

But again, we should not be too pessimistic, for we have a more positive and constructive story to report. Two years ago Bloch was invited to a summer school on "Consciousness of the self, consciousness of the others" at the Institut d'Etudes Scientifiques of Cargèse, Corsica. Papers were given by cognitive scientists such as neurologists, cognitive psychologists and analytical philosophers. Bloch learnt much that was new to him but all this new information was heard through the ear of someone who had, in the back of his mind, knowledge of a huge anthropological literature on related issues and, of equal significance, knowledge of the complexity of social life in the Malagasy villages where he has carried out ethnographic field work for a very long time. The nature of this experience raised questions about theories that had been formulated solely with WEIRD folks in mind (see Henrich, et al., 2010).

The summer school was a most stimulating experience and the thought processes that it set in motion ultimately led Bloch to write an article which, in its final form, was recently published in an anthropological journal (Bloch, 2011). The article aims to integrate data and theories from different sub-disciplines of cognitive science that address different levels of the self, ranging from the sense of ownership and location of one's body to the so-called narrative, meta-narrative and social self. As he was writing the paper, Bloch had the opportunity to present his developing ideas at a number of multidisciplinary seminars and to get comments and criticisms from other cognitive scientists. This process is thus an illustration that the theoretical integration and cross-fertilisation across disciplines as apparently distant as anthropology and neurology can occur.

Taken together, our stories suggest that there are many ways in which anthropologists can contribute to the joint enterprise of cognitive science. So, let’s just get on with it.

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[1] Susan Carey was the main collaborator in Astuti's first project, with Gregg Solomon being the other member of the team, and Larry Hirschfeld and Maurice Bloch giving their input and support throughout. While at Harvard, Astuti initiated another fruitful collaboration with Paul Harris.

[2] Thanks to the generous support of the Economic and Social Research Fund, the Nuffield Foundation and the Leverhulme Foundation.